Amendments to the Specification:

Please replace the paragraph beginning on page 4, line 17 with the following amended paragraph.

The most pertinent patent art of which the applicant is aware is U.S. Patent 5,830,415. This patent discloses a metallic mesh-like framework used in a diesel exhaust system for filtering soot. The framework also has the capability of carrying a catalyst to provide a catalytic effect. However, this reference does not teach or suggest the use of ~~woven~~ knitted metallic wires to create the mesh, but rather a process of plating urethane foam with nickel. This creates a degree of porosity which is much too restrictive to be used for other than filtering soot. Furthermore, it is an extremely time-consuming and a costly process for creating a metallic mesh framework.

Please replace the paragraph beginning on page 7, line 2 with the following amended paragraph.

To meet the needs in the art as explained above, the present invention utilizes a specific structure and unique catalytic material which, for the purposes of this disclosure, will be referred to as a "particulate reactor". The particulate reactor substrate is a unique metallic substrate in the form of a ~~woven~~ knitted metal fabric which, when coated with catalytic materials, will continuously oxidize 60%+ of the carbon particles that enter it. This new technology more closely fits into the previously described flow-through oxidizer category than the filter trap because exhaust flows through the reactor unrestricted. The reactor is not a filter, hence there is no process of carbon particle collection or necessity for filter regeneration.

Please replace the paragraph beginning on page 7, line 10 with the following amended paragraph.

The manufacturing steps include first roll-stamping small, raised dimples in the fabric substrate to control its density. The dimples standoff adjacent layers in the spooled roll, creating

greater space between them. Next, the dimpled fabric undergoes high temperature firing for hardening and degreasing, and then water quenching to harden the metal which improves heat tolerance. The treated metal ~~weave~~ knit is then aluminum oxide shot-blasted to etch the fabric surface for improved ceramic coating adhesion and increase surface area. Next, the fabric is coated with a wet slurry of an undercoating ("wash coat") prior to spooling and pressing the fabric into individualized cartridges that are held tightly wound by an encircling sleeve. Next, the sleeved spools are oven-fired. Then, the fired spools are impregnated with the catalytic precious metal. The impregnated sheathed spools are then oven-fired again and finally "canned" into an outer enclosure.

Please replace the paragraph beginning on page 8, line 4 with the following amended paragraph.

The operation of the catalytic reactor of the present invention may be briefly described as follows. As fast moving exhaust gas encounters the face of the reactor cartridge, the cartridge design disperses exhaust gas evenly throughout the volume of the matrix, thus eliminating center channeling and utilizing the entire matrix more efficiently. Exhaust gas then encounters a torturous flow path consisting of a ~~woven~~ knitted metal fabric matrix having approximately 27 million uniform loophole paths per cubic foot of spooled metal fabric volume. This unique medium makes it impossible for carbon particles to pass through the device without having relentlessly impacted the catalyzed threads making up each loophole path. Carbon particles incinerate as they impact the fabric threads which are glowing red from the catalytic exothermic reaction. The reactor design slows down the unburned carbon particles rate of passage, yet the loophole density is sufficiently open as to eventually let unburned particles pass. The center-to-

center loophole density is sufficiently dense as to allow radiant heat from each thread to combine and cause temperatures in the airspace between them to maintain sufficient temperature to incinerate passing carbon particles. This structure causes gas turbulence and increased particulate residence time within this unique oxidizing environment and results in extraordinarily high particulate oxidation rates.

Please replace the paragraph beginning on page 9, line 11 with the following amended paragraph.

Figure 1 is a top closeup view of the ~~woven~~ knitted metal fabric core substrate of the present invention.

Please replace the paragraph beginning on page 10, line 6 with the following amended paragraph.

Referring now to Figure 1, a critical element of the present invention is the core substrate. As shown in this Figure, the substrate is made from a ~~woven~~ knitted metallic fabric which itself has an organized and repeatable pattern. The fabric has an open loop structure such that exhaust gas easily passes through it and may be a single or double-strand ~~weave~~ knit. The fabric is made of alloy wire threads which are ~~woven~~ knitted into a metal fabric that has a consistent pattern with uniform density and convenient widths such as 2", 4" and 6" that can be of any length convenient for mass production, for example, 100 to 200 feet. The long rolls of fabric are then processed in a continuous manner to produce small substrate spools. The catalyzed metal fabric can be of any width or any desired ~~weave~~ knit density. The spooled reactor cartridge has 27 million loophole paths per cubic foot of volume however different ~~weave~~ knit densities may be employed as desired. The finished substrate unit provides a highly efficient and continuous carbon particulate oxidizing environment without the problems of carbon accumulation and associated back pressure

and overheating. Since there is no established technique to manufacture it, this new substrate design is unique. The following manufacturing process has been devised for this new substrate.

Please replace the paragraph beginning on page 11, line 9 with the following amended paragraph.

Referring now to Figure 4, the dimpled fabric next undergoes a firing and quenching process which burns off oils and hardens the alloy. As shown in this illustration, the dimpled ~~woven~~ knitted substrate 25 is delivered to a process line in a roll 31 and then travels through a high temperature chamber 33 which raises the temperature of the alloy fabric and burns away all oil. Immediately upon exiting the heat chamber, the fabric is fast quenched in a water bath 35. This process also hardens the fabric.